CONSOLIDATED MEDICAL INFORMATION RECORDS

This application relates to a provisional application filed on 11/29/99 and the Application Number is ~~60/167.640~~ 60/167,640, entitled Consolidated Medical Information Records.

Field of the Invention

The present invention relates to a remote network database system that can provide medical information records to various healthcare providers. More particularly, this invention relates to a secure Internet medical information database system that can be accessed by an authorized medical provider to view, store, retrieve, disseminate and receive patient medical data by using patient identification card in conjunction with a card reader/writer.

Background of the Invention

Often patients receive care through various healthcare providers. Not having access to critical patient data can jeopardize patient health and pose serious liability threats to healthcare organization. Therefore, it is essential for healthcare organizations to track patient data to ensure the best possible treatment for their patients.

It is also important for healthcare providers to process /access patient information as quickly as possible with respect to patient medical history specifically in emergency situations.

Heretofore, most healthcare providers have a database that specifically refers to their own patients. Presently, there is not a pre-agreed national database recording system among the medical providers and health care industries to access patient information records in orderly and uniformly manner.

In recent years, U.S. government and healthcare industries have set national standards for electronic filing and the transactional exchange format for health care providers to improve the efficiency and the effectiveness of the health care system. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) required the Sectary of Health and Human Services to adopt such standards in United States.

Other international countries also adopting such a standard for their healthcare system with respect to patient electronic files to overcome the problem as set forth. Adopting such national standards to work effectively require very well defined networking system in order to be used effectively and efficiently with highest file security in mind to preserve patient's right of privacy.

However, this invention, overcomes the shortcomings of the existing method and provides effective system aimed at service enhancement and patient satisfaction.

Summary of the Invention

It is an object of the present invention to provide consolidated medical information records to various healthcare providers such as hospitals, physicians, insurance

companies and individuals to improve the efficiency and the effectiveness of the health care system. The method of consolidated medical information records comprising a patient identification card in conjunction a card reader/writer which is capable of rewriting, updating and creating hyperlinks on the patient identification card for locating and accessing detailed information of the patient in a patient's folder within a remote database. The card reader and writer can also access a remote database via its built in communication interface in conjunction with a remote networking system. Patient identification card is known as smart card and has capabilities to store data into the embedded memory chip. The information on this card can be access by a card reader/writer device instantly and efficiently. Optionally, on the back of this card a magnetic strip included to be read by magnetic card reader in order to access the database information records.

In this method, program software will manage the collective data with regard to patient's information and encrypting it before sending it to a remote database via a remote networking system. A remote central database, can be accessed by a software program in conjunction with a card reader and writer and a patient identification card to receive and manage the collective data and to disseminate specific data that relates to the patient's information records at the request of an authorized user via a remote network. After user receive the information, a decryption program automatically

decrypt the patient information file and may add other services that performed by health care provider to the records.

An authorized individual such as patient can also access his/her records as read only bases via a personal computer and Internet.

It is also an object of this invention to provide a handheld medical identification card reader/writer for paramedics to access the vital information in emergency situation and to be able to view the patients medical history records quickly as needed to save patient's life.

It is yet another object of this invention to create a patient's folder for each patient in central database. The patient's folder may include pages such as allergies, medications, immunization, surgeries, diagnosis, emergency contact, insurance, healthcare providers, patient's quick chart review, patient history chart review and other necessary information. The specific page in patient's folder can be access directly via card reader/writer's keypad. The patient's folder can provide a uniform information system with regards to national standards in order to collect and manage patient data.

Further objects and advantages of this invention will become apparent from consideration of the drawings and description that follows.

Brief Description of the Drawings

Exemplary embodiments of the invention will now be described in conjunction

with the drawings in which:

FIG. 1 is a block diagram of the present invention showing consolidated medical information records system in conjunction with remote network, a central database, and on-line multi user.

FIG. 2A is a block diagram showing a patient identification card and a card reader/writer in remote connection with medical information records used in healthcare organizations such as hospital.

FIG. 2B is a block diagram showing a patient identification card and a card reader/writer in remote connection with medical information records used for healthcare provider such as physicians.

FIG. 3 is a block diagram showing the preferred embodiment of present invention in a hospital networking system.

FIG. 3A is a block diagram illustrating the process of downloading the patient electronic file to central database via remote network.

FIG. 3B is a block diagram illustrating the process of uploading the patient electronic file from central database to user's computer via remote network.

FIG. 4 is a front view of a patient identification card.

FIG. 5 is a rear view of a patient identification card.

FIG. 6 is a front view of a card reader with patient identification card.

FIG. 7 is a left side view thereof.

FIG. 8 is a similar view as FIG. 6 except the patient identification card swipe at the bottom.

FIG. 9 is a block diagram of medical card reader/writer in conjunction with patient identification card.

FIG. 10 is a sample page in database for recording patient personal information data.

FIG. 11 is a sample page in database for recording patient current medications data.

FIG. 12 is a sample page in database for recording Patient insurance information data.

FIG. 13 is a sample page in database for recording patient medical-hospital information data.

FIG. 14 is a sample page in database for recording patient healthcare provider data.

FIG. 15 is a sample page in database for recording patient allergies data.

FIG. 16 is a sample page in database for recording patient immunizations data.

FIG. 17 is a sample page in database for recording patient diagnoses data.

FIG. 18 is a sample page in database for recording patient emergency contact

data.

FIG. 19 is a sample page in database for recording patient updated information data.

FIG. 20 is a sample page in database for recording patient surgical procedures data.

Detailed Description of the Invention

FIG. 1 is showing an overall view of a remote network database system 100 to be used in providing consolidated medical information records from central database 160. This system includes authorized on-line multi users such as hospitals 120, physicians 150, pharmacies 151, paramedics 110, insurance companies 130 and individuals 140 to access patient's information records as often needed to provide healthcare for patients.

Authorized healthcare providers such as hospitals can instantly access the patient information records by inserting or swiping the patient identification card into a card reader/writer device 104. Then the card reader/writer device 104 can access patient history records in a secure database 168 via a remote network such as Internet 170. The extracted Information by the card reader/writer 104 can be viewed, modified and updated as needed. An authorized individual such as a patient can also access the information by using a personal computer 142 and Internet 170. However, individuals

need to go to the web site 162 and enter their authorization code 164 to access the information records as read basis only to follow up or check on the status of their information records.

A handheld card reader 102 can also be use to view the patient health records instantly. Paramedics 110 can access the information records very quickly either by using the patient card or by entering the patient account number.

Referring to FIG. 2A and 2B, the basic method of downloading and receiving patient's information to a medical card reader/writer 104 and a patient identification card 400 is illustrated. The card reader/writer 104 has a built in communication interface 201 such as cellular modem to access the patient's folder in a remote database 160 via a remote network 170. A software program in the card reader/writer 104 may also check hospitals and physicians records 120 and 150 to make sure their records are up to date with respect to patient's information records.

FIG. 3 is the preferred embodiment of present invention that is shown in conjunction with a hospital networking system 300. Hospital networking system can adopt a handheld card reader/writer 104 and connecting by a communication cable 304 to a computer 306. The handheld card reader/writer may have a cradle 302 to charge the handheld chargeable barriers. When a patient identification card 400 is inserted into the card reader/writer 104, the information on the card is accessed by the card

reader/writer and then transferred to the computer 306 via the communication cable 304. The computer displays the content of the patient I.D. card. Any new entry that is entered in the computer on behalf of the patient can be encrypted by a software application in the computer and stores it into a proxy web server 318 database and then it'll be uploaded to a central database 160 and stores in specific page of a patient's folder. All the electronic files that are saved in central database should comply with national standards.

FIG. 3A and 3B illustrate the uploading and downloading patient's electronic files within a remote database 160. In FIG. 3B, patient identification card 400 is inserted into the card reader/writer 104. However, the information on the card doesn't have the most recent information on the card. Therefore, the software application in the computer updates the information on the card by downloading the most recent file and displays it on the computer monitor after the program in the computer decrypted the patient's information file.

FIG. 4 and 5 showing a patient identification card that includes a memory chip known as smart chip with contact terminal 404, a photo / fingerprint I.D. 402, printed name 406 and an account number 408. On the other side of this card a magnetic strip 410 is placed. The information on this card can be accessed by a card reader 102 and a card reader/writer 104 as shown in FIG. 6-8. The patient identification card 400 can be

inserted in top slot 612 to be connected with a system bus in the card reader 102 or to swiped the card 400 in slot 614 for magnetic strip 410 to read the information on the card 400. The card reader 102 includes a keypad 602, quick access keys to direct patient information records 604 and a display screen 606. This card reader may provide two-way communications via cellular technology to transmit voice /fax and may have a speaker 618 and a microphone 610 to receive voice instructions. This device may also include speech recognition software to have the capabilities of voice authorization.

In FIG. 9 a card reader/writer is shown in block diagram 900 in conjunction with a patient I.D. card 400. The function of this unit is similar to a mini computer and includes a processor 910, a display screen 942, a display interface 912, a bridge 914, a system memory 916 and a system bus 924. System bus is also connected to ROM 918, mass storage 920, a keypad /keyboard 922 and the communication interface 926. The communication interface 926 in communication with a remote network 170 to access the information records in web server database. In order to access the information on the patient card and process the information using this card reader/writer 104 or card reader 102, an authorization code is required. The authorization code 934 along with a private key 936 is setup in ROM to ensure a secure and safe system.

FIG. 10-20 is illustrating sample pages in database for recording patient information records in a patient's folder. These sample pages are designed to bring

uniformity among healthcare providers and can be combined with illustrations, images, sound and video. For example the patient information records may include x-ray images, dental x-ray image, ultrasound images and etc.

While this invention is susceptible of embodiments in many different forms, this specification and the accompanying drawings disclose only some specific forms as examples of the invention. The invention is not intended to be limited to the embodiments so described, however, the scope of the invention is pointed out in the appended claims.